ENTOMOLOGY.—*Notes on some species of the* Amata (Syntomis) cymatilis *group from the Philippine Islands, with description of a new species (Lepidoptera: Ctenuchidae).* NICHOLAS S. OBRAZTSOV, Sea Cliff, L. I., N. Y. (Communicated by William D. Field.)

The Philippine moth *Amata cymatilis* (Swinhoe) was regarded as a very variable species with characters independent of geographic distribution (Semper, 1898). Hampson (1898) considered *Syntomis laomedia* Druce a synonym for *cymatilis*; Seitz (1913) described and figured a new aberration of *cymatilis* which he named ab. *orthrus* Seitz. A first step in the separation of a new species in the *cymatilis* group was made by Wileman (1916) who described *Amata mindamaoensis* Wileman based on a female specimen.

Through the courtesy of J. F. Gates Clarke and W. D. Field, of the U. S. National Museum in Washington, the author of the present paper had an opportunity to study a large series (162 specimens) of moths in this museum, identified as *cymatilis*. This examination permitted the author to ascertain that the group in question consisted of three independent species: *cymatilis* Swinhoe, *laomedia* Druce and *bryopoda*, n. sp. Figures of the last of these species were already published but wrongly identified by Semper (1898) as *cymatilis*. All three species are very similar to one another and in a mixed series give the impression of a common, rather variable species. On the basis of genitalia and some external characters, they should be identified as independent species.

The most important charácter which differentiates the *cymatilis* group from the rest of *Amata* species is a large area of androconial scales on the under wing surface in the male. In the androconial scaling of legs in the male, two species of the group are related to the species *sublutea* Beth.-Baker and *teinopera* Hampson. The remaining features are not so typical for the group and can be found in some other species of the genus.

The distinguishing features of the species of the *cymatilis* group are as follows:

1. The frons (if patched) is in both sexes
   (a) white—*cymatilis bryopoda*;
   (b) yellow—*laomedia*.
2. The pectus has yellow lateral patches only in some male specimens of *laomedia*; mostly it is entirely black in all three species.
3. Patagia are yellow only in some specimens of *laomedia*; mostly they are black in all three species.
4. Legs with androconial scaling in the male:
   (a) on the fore tibiae and femora—*cymatilis*;
   (b) on the middle tibiae and femora—*cymatilis, bryopoda*;
   (c) on the hind femora—*bryopoda*;
   (d) without any androconial scaling—*laomedia*.
5. The inner side of the fore coxae is whitish yellow only in *bryopoda*.
6. The first abdominal tergite is yellow only in some specimens of *laomedia*.
7. The fifth abdominal sternite is yellow banded in all three species, but in *bryopoda* this pigmentation is sometimes reduced to two lateral spots.
8. The fifth abdominal tergite in *bryopoda* alone is never yellow banded; in both other species, it is either banded or not.
9. The androconial scaling of the under surface of the forewing of the male
   (a) reaches or almost reaches the exterior subcostal spot (m_4)—*laomedia, bryopoda*;
   (b) is separated from the spot m_4 by a normally scaled area—*cymatilis*.
10. In the forewing of the male
    (a) both the lower external spots (m_5 and m_6) are equally remote from the middle cell—*cymatilis, bryopoda*;
    (b) the spot m_6 is nearer to the middle cell than the spot m_5—*laomedia*.
11. In the hind wing the basal spot is
    (a) irregularly subcordate—*cymatilis*;
    (b) slightly elongate—*bryopoda*;
    (c) roundish in most females of *laomedia*;
    (d) dotlike only in some female specimens of *cymatilis* and some male specimens of *laomedia*;
    (e) absent in some females of *cymatilis*, rarely in the females of *laomedia* but often in the males, usually absent in the males of *bryopoda* but always present in the females.
12. The distal spot of the hind wing is
    (a) larger than the basal one only in the females of *laomedia*;
    (b) dotlike in the females of *cymatilis* and some females of *bryopoda*;
    (c) always absent in the males of *laomedia*, *cymatilis* and *bryopoda* but present in the females of the last of the mentioned species and *laomedia*, often present also in the females of *cymatilis*;
    (d) elongate only in the females of *bryopoda*.

The genitalia are very typical for each of the three species of the *cymatilis* group and their distinguishing features are clearly seen from descriptions and figures reproduced below.

Amata (Syntomis) cymatilis (Swinhoe)

Figs. 3, 9–11

Syntomis cymatilis Swinhoe, Cat. East. and Austral. Het., **1**: 40. 1892; Zerny, Wagner's Lep. Cat. **7**: 20. 1912.

Male.—Antennae simple, black, short white tipped above, brownish yellow beneath. Head black, usually with a bluish reflection; frons sometimes with a slightly whitish scaling. Patagia black; tegulae black with shoulders blue reflecting. Thorax brown black; pectus usually with a blue or violet reflection. Legs brown with a greenish or violet reflection; inner surface of the fore and middle tibiae and femora with a lighter brownish androconial scaling but this scaling is not or almost not visible from above. Abdomen dark lustrous blue, rarely dull brownish black on the ventral surface; fifth segment completely encircled by a yellow girdle or with such a band only on the ventral surface.

Wings black with a more or less developed blue reflection; forewing with five white-hyaline spots and sometimes a sixth little dot (m_3); hind wing with a basal spot only. The under surface of both wings with a well-developed, pale brownish, androconial scaling. In the forewing this scaling occupies the external wing part, from the spot m_1 and outward from the spots m_4–m_6, and fills uninterruptedly out the interspace between the middle cell and dorsum and the subterminal interspace from the costa to the tornus forming between the veins M_1 and M_2 a ray toward the middle cell. The inner border of this androconial area does not reach the lower border of the middle cell and is more or less remote from the spot m_4 leaving a normally scaled area behind it. In the hind wing the androconial scales occupy the whole terminal area beyond the basal spot and the middle cell and only extend as separate, more or less long rays into the basal wing part. Length of the forewing: 12–16 mm.

The basal spot (m_1) of the forewing subquadrate, rather large; spot (m_2) in the middle cell shortly trapezoid or subquadrate; the subcostal exterior spot (m_4) small or rather large, ovate or roundish; both the lower exterior spots (m_5 and m_6) elongate, equally remote from the middle cell; the exterior supradorsal spot (m_3) sometimes present as a little dot near the dorsum, in front of the middle of the middle cell. The basal spot of the hind wing irregularly subcordate, indented on the outer side.

Female.—Similar to the male but without the androconial scaling on legs and wings. The spot m_1 of the forewing sometimes smaller; the spot m_3 well developed, variously shaped: oval, rhomboid, or irregular; the spots m_4–m_6 more elongate. In the hind wing besides the basal spot (which is sometimes absent) a little distal dot beyond the lower angle of the middle cell is often present; it is more or less separated from the basal spot. A white patch on the frons is sometimes well developed.

Male genitalia.—Uncus slender; lateral appendages of the tegumen narrow, almost direct. Right valva (Fig. 9) with a broad based, free pointed sacculus; distal part of the valva bilobate, the upper lobe enlarged at tip, the lower one narrow but longer. Left valva (Fig. 10) with a broad based, short free pointed sacculus; distal part of the valva pointed, with a less developed upper angle. Processes basales of both valvae narrow, the right slightly shorter than the left one. Aedoeagus as in *bryopoda* (cf. hereinafter).

Female genitalia.—Lateral parts of the seventh tergite rounded; plate of the eighth sternite broad, proximally with a flat, roundish area, distally rather narrowly notched; the latero-distal angles of this plate broad, rounded. Ostium bursae slightly displaced to the right, distinctly separated from the plate of the eighth sternite; ductus bursae sclerotized more than a half of its length; corpus bursae with a longitudinal stippling.

Remarks.—The original description of *cymatilis* mentioned in addition to other characters a lustre reflection of legs and wings not only on the outer surface but also on the under surface, in the wing areas free of androconia. This character, in combination with a complete, yellow girdle on the fifth abdominal segment in the female is typical only for the species redescribed above as *cymatilis*. The complete girdle itself in *cymatilis* is not a specific feature because of its inconstant presence in all specimens and in the studied materials it has been observed only in two males and two females from Bilaran, two males and two females from St. Cruz and one female from Cabuntug. In each of the two latter localities there was found

one female specimen with yellow bands only on the ventral surface of the abdomen. This character in *cymatilis* is evidently variable as in *laomedia*. Both the forms of *cymatilis*, a completely and an incompletely banded one, are identical in the genitalia.

The following material in the U. S. National Museum was studied:

MINDANAO: Surigao, 2 ♂♂, 3 ♀♀ (May).
LUZON: Mount Mikiling, 3 ♂♂ (Baker; preparations of genitalia nos. 4540 and 4543, W.D.F.); Mount Drid, Rizal Province, 1 ♂ (November

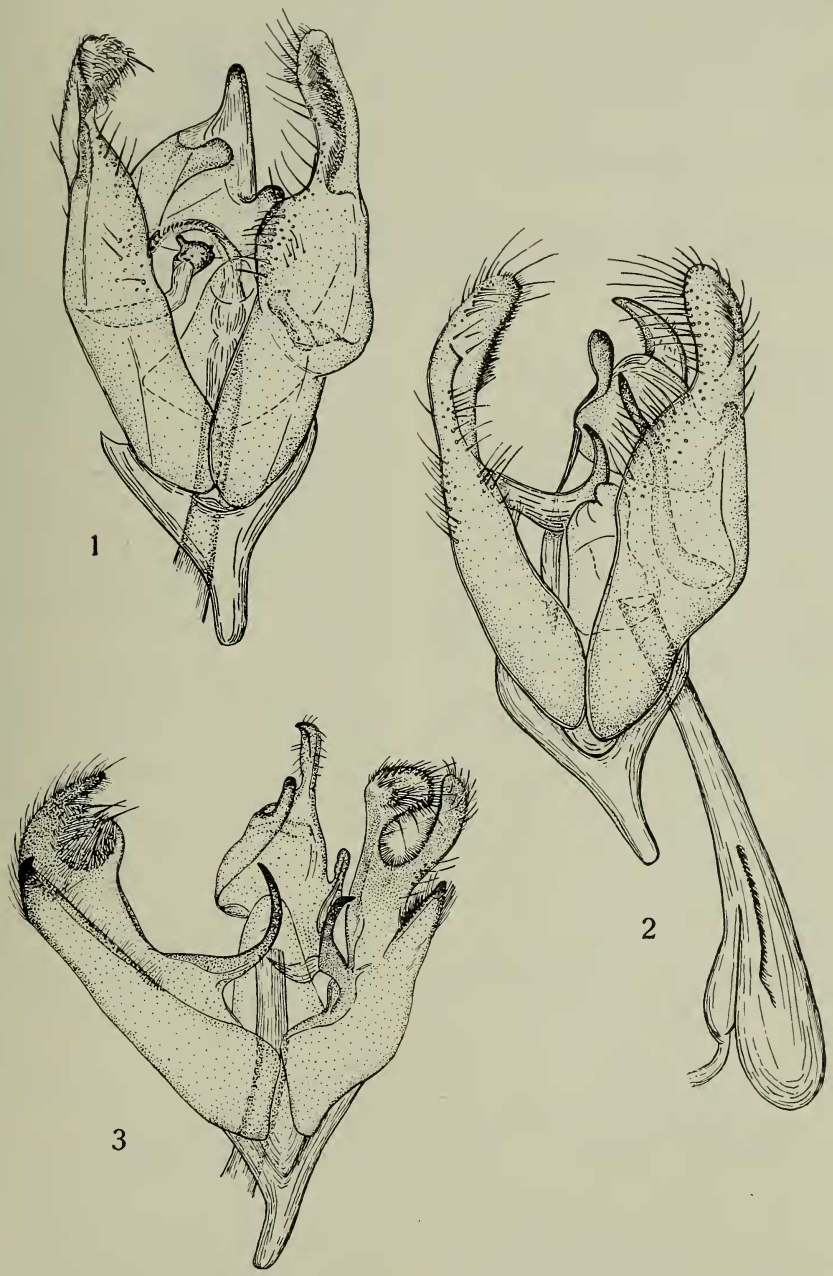

FIG. 1.—*Amata* (*Syntomis*) *laomedia* (Druce): Ventral aspect of male genitalia; Cabuntug, Siargao (September 18, 1916, preparation no. 4527, W.D.F.). FIG. 2.—*A.* (*S.*) *bryopoda*, n. sp.: Ventral aspect of male genitalia; Monuangon, Mindanao (February 24, 1915, preparation no. 4536, W.D.F.). FIG. 3.—*A.* (*S.*) *cymatilis* (Swinhoe): Ventral aspect of male genitalia; St. Cruz, Leyte (October 13, 1915, preparation no. 4544, W.D.F.).

1926); Bilaran, 2 ♂♂, 3 ♀♀ (October 21, 1915; September 28, 1918; preparation of the male genitalia no. 4539, W.D.F.); Los Baños, 1 ♂, 1 ♀ (February 25, 1914, Baker); Mount Banahao 1 ♂, 1 ♀ (June 15, 1914; August 18, 1916).

LEYTE: St. Cruz, 2 ♂♂, 3 ♀♀ (October 11–14, 1915; one couple in copula; preparation of the male genitalia no. 4544, W.D.F.); Burauen, 1 ♂, 1 ♀ (May 4 and 5, 1915).

SIARGAO: 2 ♀♀ (September 9, 1916); Dapa, 1 ♂ (November 6, 1916); Cabuntug, 2 ♂♂, 2 ♀♀ (September 14–18, 1916, preparation of the female genitalia no. 4545, W.D.F.).

Amata (Syntomis) bryopoda, n. sp.

Figs. 2, 4, 7, 8

Syntomis cymatilis (non Swinhoe) Semper, Schmett. Philipp. **2:** 419, pl. 53, figs. 4–5, 1898; ? Seitz, Gross-Schm. Erde **10:** 79, pl. 11h, fig. 1. 1913.

Male.—Antennae simple, black, short white tipped above, brownish yellow beneath. Head black brown; frons sometimes with a white scaling forming an indistinct patch. Patagia, tegulae, and thorax brownish black, often with a blue reflection. Legs dark brown; inner surface of the fore coxae whitish yellow; middle femora and tibiae and the hind femora very rough densely scaled with pale brown androconia. Abdomen brown black, with a dull, bluish or violet reflection; fifth sternite with lateral yellow patches not seldom connected in a band.

Wings brownish black, the hind wings usually somewhat paler; the forewing sometimes with a dull, bluish or violet reflection, with five white-hyaline spots; sometimes a sixth dotlike spot (m_3) is present; the hind wing only with a small basal spot or without it. The under surface of both wings with a pale brownish androconial scaling occupying most of the wing surface. In the forewing the whole supradorsal area from the spot m_1 to the tornus, the area from tornus to the costa between the termen and the spots m_4–m_6, and the interspace between the veins M_1 and M_2 to the middle cell is covered by androconia. In the hind wing the area covered by androconia occupies not less than the two exterior thirds of the whole wing surface. Length of the forewing: 13–16 mm.

The basal spot (m_1) of the forewing subquadrate; the spot (m_2) in the middle cell elongate trapezoid; the middle supradorsal spot (m_3) only occasionally present, dotlike; the exterior spots (m_4–m_6) more or less elongate, the upper of them (m_4) usually the broadest. The spot of the hind wing very small, generally slightly elongate, usually absent.

Female.—Similar to the male but without androconia. The wing spots, especially the exterior ones (m_4–m_6) in the forewing, larger; the spot m_3 of the forewing well developed, roundish or oval; the basal spot in the hind wing always present, dotlike as in some male specimens or larger, elongate; the distal spot (absent in the male) dotlike. The yellow band on fifth abdominal sternite presented by two separate lateral spots, occasionally by a diffuse yellow scaling along the postsegmental edge; sides of the seventh sternite and the edges of the genitalic opening often slightly yellowish scaled.

Male genitalia.—Uncus rather thick; lateral appendages of the tegumen slightly bent. Right valva with a moderately broad sacculus; distal part of the valva elongate, simple; the upper angle of the valva underdeveloped. Left valva with a large based sacculus slightly pointed at tip; distal part of the valva shaped like that of the right valva but somewhat broader; upper angle of the valva absent. Processus basalis of the right valva narrow, almost direct in its distal part and longer than the bent processus of the left valva. Aedoeagus enlarged in the direction of the coecum penis; cornuti a row of little spines.

Female genitalia.—Lateral parts of the seventh tergite rounded; plate of the eighth sternite almost subcordate, distally broadly notched, with rather long laterodistal angles. Ostium bursae almost in the middle, indistinctly separated from the plate of the eighth sternite; ductus bursae sclerotized only in the distal third of its length; corpus bursae with an indistinct longitudinal stippling.

Remarks.—Described from a series from Monuangon, Mindanao (February 16 to March 7, 1915). Male holotype (February 27), female allotype (February 23), 39 male and 12 female paratypes (preparations of the male genitalia no. 4536 and the female genitalia no. 4546, W.D.F.). Further, 1 ♂ and 3 ♀♀ from Kolambugan, Mindanao (January 22–24, 1915) and Island Panaon, 1 ♂ (November 26, 1915).

There are 17 more specimens of an uncertain taxonomic value (? subspecies) but undoubtedly conspecific with the new species. They differ by a distinctly white patched frons, a broad yellow band on the fifth abdominal sternite, and the basal spot of the hind wing larger, in some

female specimens with a little additional dot beyond the lower angle of the middle cell. This series is as follows:

MINDANAO: Surigao, 7 ♂♂, 7 ♀♀ (May 21 and 28, 1915; November 12, 1915; August 8–30, 1916; preparation of the male genitalia no. 4541, W.D.F.); Butuan, 1 ♂ (June 4, 1915).

LUZON: Los Baños, 1 ♀ (Baker).

PHILIPPINES: 1 ♀.

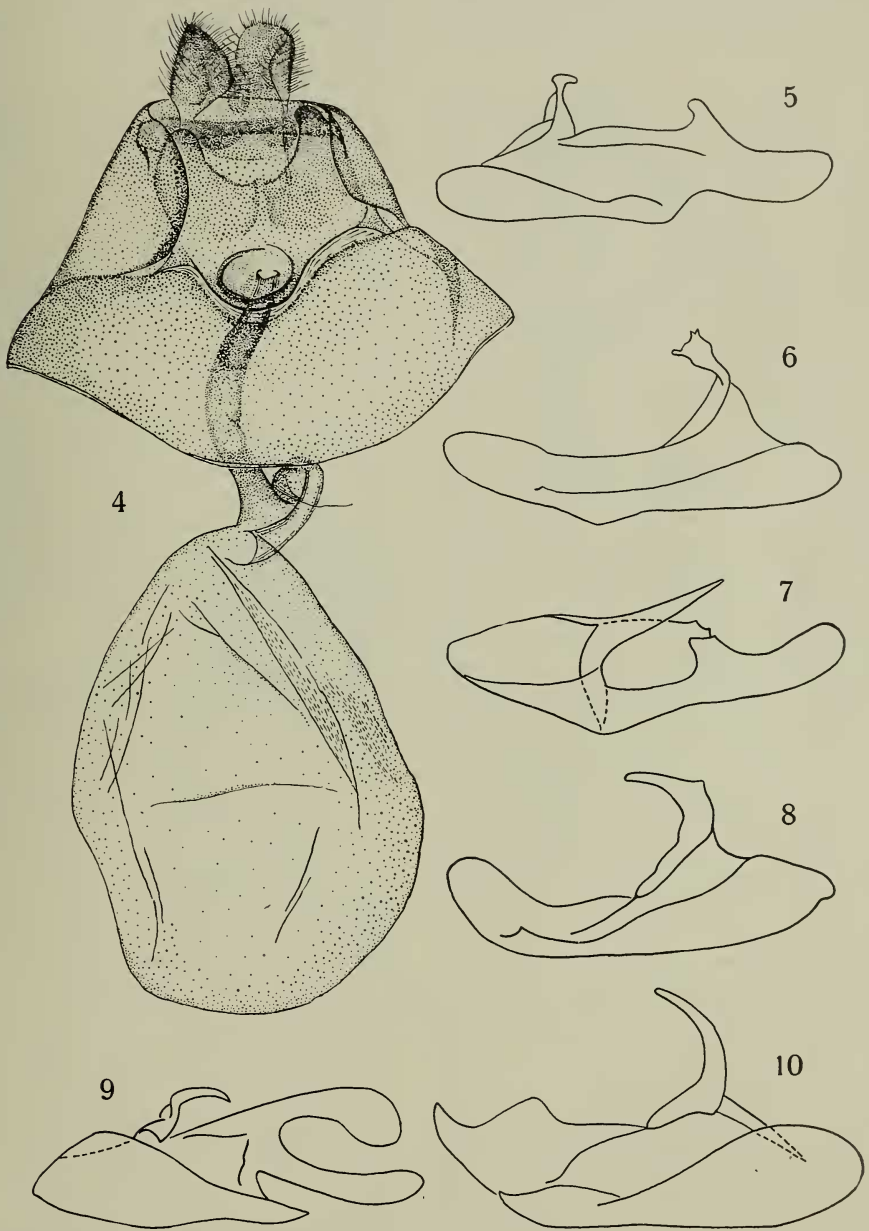

FIG. 4.—*Amata* (*Syntomis*) *bryopoda*, n. sp.: Ventral aspect of female genitalia; Monuangon, Mindanao (February 22, 1912, preparation no. 4546, W.D.F.). FIG. 5.—*A.* (*S.*) *laomedia* (Druce): Inner surface of the right valva. FIG. 6.—Idem: Left valva. FIG. 7.—*A.* (*S.*) *bryopoda*, n. sp.: Inner surface of the right valva. FIG. 8.—Idem: Left valva. FIG. 9.—*A.* (*S.*) *cymatilis* (Swinhoe): Inner surface of the right valva. FIG. 10.—Idem: Left valva.

Amata (Syntomis) laomedia (Druce)
Figs. 1, 5, 6, 12

Syntomis laomedia Druce, Ann. Mag. Nat. Hist. (6) **15**: 43. 1895.
Syntomis cymatilis (non Swinhoe) Hampson, Cat. Lep. Phal. **1**: 76, fig. 35. 1898; (part.) Zerny, Wagner's Lep. Cat. **7**: 20. 1912.
Syntomis cymatilis ab. *orthrus* Seitz, Gross-Schm. Erde **10**: p. 79, pl. 11h, fig. 2. 1913.
Amata mindanaoensis Wileman, Entomologist **49**; 132. 1916.

Male.—Antennae simple, black, short white tipped above, brownish yellow beneath. Head brown black; frons sometimes with a yellowish spot. Patagia brownish black or yellow. Tegulae brown black, sometimes with yellow hairs at tips. Thorax brownish black; pectus often with two yellow patches on each side. Legs smooth, dark brown, almost black. Abdomen brownish black with a violet or bluish green reflection; first tergite sometimes yellow, fifth segment completely girdled with yellow or with such a ventral band only.

Wings dull brown black to black; six (rarely five) white-hyaline spots in the forewing; a little basal dot or not any one in the hind wing. The under surface of both wings with a well-developed pale brownish androconial scaling. This scaling occupying the external part of the forewing extends from the costa, apex and termen to the tornus and dorsum; the inner border of the area scaled by androconia reaches or almost reaches to the spot m_4 and both spots, m_5 and m_6, forming a ray toward the middle cell between the veins M_1 and M_2 and fills up almost completely the interspace between the dorsum, the spot m_1 and the middle cell; only some veins near the inner border of the androconial area are normally scaled. In the hind wing the area covered by androconia occupies the whole external wing part and forms a scalloped inner border which stops rather far from the basal hyaline spot (or its place because this spot is often absent). The costa of the hind wing is sometimes yellow. Length of the forewing: 11–15 mm.

Both the supradorsal spots (m_1 and m_3) are the smallest in the forewing; the spot m_3 sometimes dotlike, rarely absent; the spot (m_2) in the middle cell the largest of all, more or less elongate trapezoid, as broad as the middle cell but much shorter than it; the subcostal exterior spot (m_4) broader but not shorter than both the lower exterior spots (m_5 and m_6); the spot m_6 nearer to the middle cell than the spot m_5.

Female.—Similar to the male but without androconial scaling. All spots larger, especially the spots m_3–m_6; the spot m_6 not nearer the middle cell than the spot m_5. The basal spot of the hind wing small although larger than in the male, rarely absent; an oval distal spot beyond the lower angle of the middle cell. The yellow band on the fifth abdominal segment reduced sometimes to lateral spots; not any of examined specimens had yellow patagia.

Male genitalia.—Uncus rather thick; lateral appendages of the tegumen rather broad, distally rounded. Right valva with a sacculus rather moderately thickened at the base and without a free point; distal part of the valva elongate, simple; upper angle narrow. Left valva with a rather narrow sacculus with a little free tip point; the entire left valva rather narrow, without an upper angle. Processes basales of both valvae thickened at tips, the left one longer. Aedoeagus as in *bryopoda*.

Female genitalia.—Lateral parts of the seventh tergite directly cut; plate of the eighth sternite rather narrow, with narrow laterodistal parts. Ostium bursae considerably displaced to the right, distinctly separated from the plate of the eighth sternite; ductus bursae sclerotized some less than a half of its length; corpus bursae irregularly stippled.

Remarks.—In the original diagnosis of *laomedia* Druce (1895) mentioned the abdomen banded with yellow at the base and this character appears only in the above redescribed species of the *cymatilis* group. The absence of a reflection of the wings (Druce wrote: "Primaries black," "secondaries deep black"), a square spot at the base of the forewing and a small one close to the base of the hind wing, black legs, all these characters favor the application of the name *laomedia* only for the redescribed species.

Hampson (1898) misidentified *laomedia* for *cymatilis* and ranged it as a synonym to this latter species. He figured the species from a male specimen in which the wing area scaled by androconia was evidently defected or underdeveloped. There is no doubt that *Amata mindanaoensis* Wileman is only a female of *laomedia* and therefore its synonym. Very typical in the original description of *mindanaoensis* there was a mention of the spot in the hind wing as "an elongate hyaline spot beyond the lower angle of cell." Only in *laomedia*, a well developed distal spot of the hind wing could be presented and, at the same time, the

basal spot absent. The specimen, described and pictured by Seitz (1913) as *Syntomis cymatilis* ab. *orthrus*, was also a female of *laomedia* because of two separate spots on the hind wing.

The following specimens of *laomedia* were at hand:

MINDANAO: Monuangon, 29 ♂♂, 4 ♀♀ (February 22 to March 4, 1915; preparations of the male genitalia nos. 4528 and 4537, W.D.F.); Butuan, 5 ♂♂, 2 ♀♀ (June 1–5, 1915; preparations of the male genitalia nos. 4538 and 4542; female genitalia no. 4547, W.D.F.); Kolambugan, 1 ♀ (January); Surigao, 1 ♀ (August 8, 1916).

LEYTE: St. Cruz, 3 ♂♂ (October 13–14, 1915); Burauen, 1 ♂, 1 ♀ (May 3, 1915).

SIARGAO: Cabuntug, 2 ♂♂, 1 ♀ (September 10–18, 1916; preparation of the male genitalia no. 4527, W.D.F.).

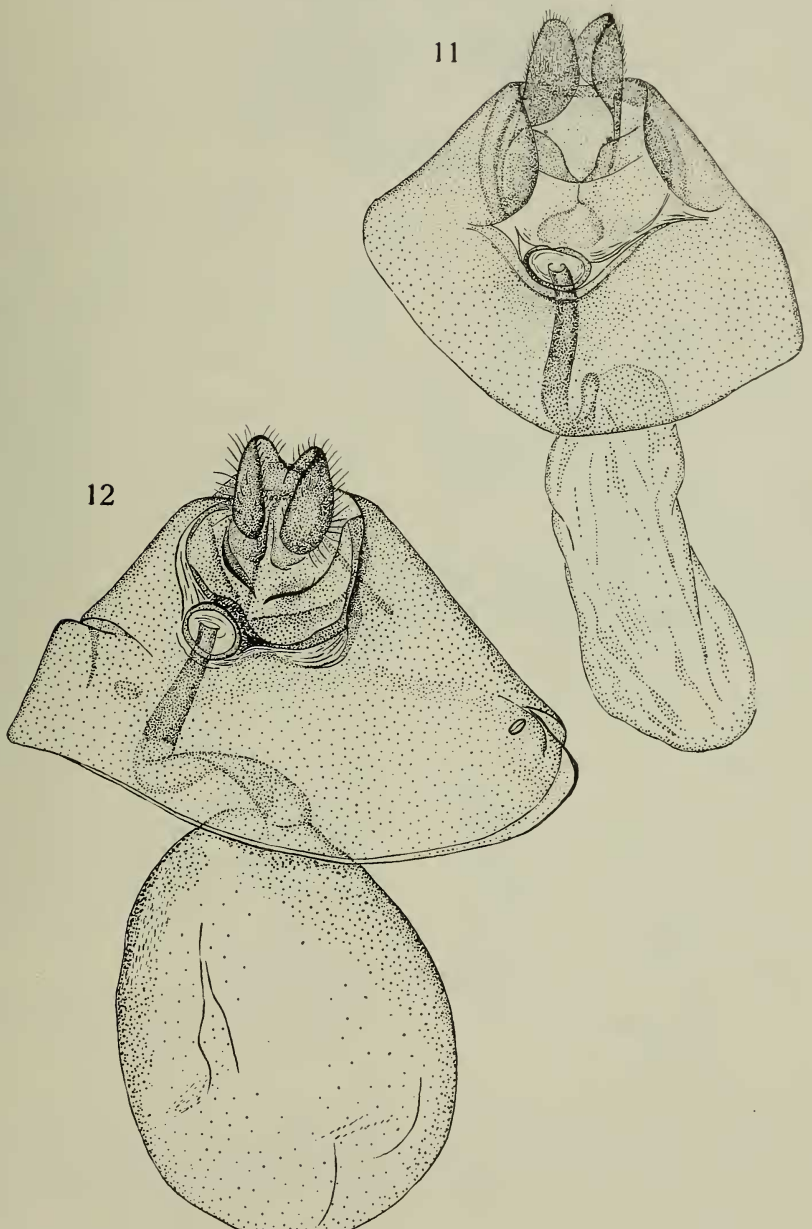

FIG. 11.—*Amata* (*Syntomis*) *cymatilis* (Swinhoe): Ventral aspect of female genitalia; Cabuntug, Siargao (September 10, 1916, preparation no. 4545, W.D.F.). FIG. 12.—*A.* (*S.*) *laomedia* (Druce): Ventral aspect of female genitalia; Butuan, Mindanao (June 6, 1915, preparation no. 4547, W.D.F.).